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ENANTIOSELECTIVE SYNTHESIS OF ASPARENOMYCIN C BY CHEMICOENZYMATIC APPROACH

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The synthetic control of absolute stereochemistry of (+)-thienamycin and the related naturally occurring carbapenem antibiotics has been developed by a number of groups. We also developed an efficient chiral synthesis of both 5,6-trans- and 5,6-cis-substituted carbapenems by a chemicoenzymatic approach. Asparenomycins recently isolated are unique in the side chain at C-6 having 6,8-didehydro moiety. We would like to present here the first enantioselective and stereoselective synthesis of asparenomycin C. The characteristic feature of the present strategy includes that the desired E-tetrasubstituted olefin was elaborated in a stereospecific manner by a combination of chelation controlled aldol reaction and Peterson olefination of (S)-4-[(methoxycarbonyl)methyl]-2-azetidinone prepared by a chemicoenzymatic approach.